

AMENDMENTS TO THE CLAIMS

1. (Original) A vortex flow sensor for measuring a fluid flowing in a pipe, particularly for measuring a flow velocity, a volumetric flow rate, and/or a mass flow rate of the fluid, the vortex flow sensor comprising:

a flow tube connected into the pipe for conducting the flowing fluid;
a bluff body disposed in the lumen of the flow tube and serving to shed Karman vortices; and

a vortex sensor device responsive to pressure fluctuations caused by the vortices, said vortex sensor device including a sensor vane extending into the flowing fluid downstream of the bluff body and being moved, particularly repeatedly, by the vortices, and at least one sensing element mechanically coupled to the sensor vane and responsive to motions of the sensor vane;

wherein the vortex flow sensor further comprises a first temperature sensor and at least a second temperature sensor for sensing temperatures in the flowing fluid, said first and second temperature sensors being disposed within the sensor vane and being fitted therein in such a way as not to be wetted in operation by the flowing fluid.

2. (Original) A vortex flow sensor as set forth in claim 1 wherein the sensor vane has at least one blind hole in which at least one of the two temperature sensors is fitted.

3. (Original) A vortex flow sensor as set forth in claim 2 wherein the first and second temperature sensors are fitted in the at least one blind hole.

4. (Original) A vortex flow sensor as set forth in claim 1 wherein the first and second temperature sensors are spaced from each other.

5. (Original) Use of a vortex flow sensor as set forth in claim 1 for measuring

flowing vapor.

6. (Original) A vortex flow sensor for measuring a fluid flowing in a pipe, particularly for measuring a flow velocity, a volumetric flow rate, and/or a mass flow rate of the fluid, the vortex flow sensor comprising:

a flow tube connected into the pipe for conducting the flowing fluid;

a bluff body disposed in the lumen of the flow tube and serving to shed Karman vortices; and

a vortex sensor device responsive to pressure fluctuations caused by the vortices, said vortex sensor device including a sensor vane extending into the flowing fluid downstream of the bluff body and being moved, particularly repeatedly, by the vortices, and at least one sensing element mechanically coupled to the sensor vane and responsive to motions of the sensor vane;

wherein the vortex flow sensor further comprises a first temperature sensor and at least a second temperature sensor for sensing temperatures in the flowing fluid, said first and second temperature sensors being disposed within the bluff body and being fitted therein in such a way as not to be wetted in operation by the flowing fluid.

7. (Original) A vortex flow sensor as set forth in claim 6 wherein the bluff body has at least one blind hole in which at least one of the two temperature sensor is fitted.

8. (Original) A vortex flow sensor as set forth in claim 7 wherein the first and second temperature sensors are fitted in the at least one blind hole.

9. (Original) A vortex flow sensor as set forth in claim 6 wherein the first and second temperature sensors are spaced from each other.

10. (Original) Use of a vortex flow sensor as set forth in claim 6 for

measuring flowing vapor.

11. (New) The apparatus as claimed in claim 2 wherein the blind hole is filled with a potting compound to fix the at least one temperature sensor being fitted within said blind hole.

12. (New) The apparatus as claimed in claim 11 wherein the potting compound is selected from a group consisting of ceramic adhesives and epoxy adhesives.

13. (New) The apparatus as claimed in claim 1 wherein the sensor vane has a principal surface and wherein a wall-part of said blind hole protrudes from said principal surface.

14. (New) The apparatus as claimed in claim 1 wherein the sensor vane is wedge-shaped.

15. (New) The apparatus as claimed in claim 1 wherein the sensor vane is made from a metal.

16. (New) The apparatus as claimed in claim 1 wherein the temperature sensors comprise platinum resistance elements.

17. (New) The apparatus as claimed in claim 1 wherein the temperature sensors comprise thermocouples.

18. (New) The apparatus as claimed in claim 1 wherein the temperature sensors comprise temperature sensitive semiconductor devices.

19. (New) The apparatus as claimed in claim 1 further comprising evaluation

electronics for calculating at least one of the volume flow, the mass flow and the flow velocity of said fluid.

20. (New) A vortex flow sensor for measuring a fluid flowing in a pipe, particularly for measuring a flow velocity, a volumetric flow rate, and/or a mass flow rate of the fluid, the vortex flow sensor comprising:

a flow tube connected into the pipe for conducting the flowing fluid;

a bluff body disposed in the lumen of the flow tube and serving to shed Karman vortices;

a vortex sensor device responsive to pressure fluctuations caused by the vortices and to convert pressure fluctuations into an electric vortex signal; and

a first temperature sensor and at least a second temperature sensor for sensing temperatures in the flowing fluid, said first and second temperature sensors being disposed within said bluff body.

21. (New) A vortex flow sensor as set forth in claim 20 wherein the first and second temperature sensors are fitted therein in such a way as not to be wetted in operation by the flowing fluid.

22. (New) A vortex flow sensor as set forth in claim 20 wherein the bluff body has at least one blind hole in which at least one of the two temperature sensor is fitted.

23. (New) A vortex flow sensor as set forth in claim 22 wherein the first and second temperature sensors are fitted in the at least one blind hole.

24. (New) A vortex flow sensor as set forth in claim 20 wherein the first and second temperature sensors are spaced from each other.

25. (New) A vortex flow sensor as set forth in claim 20 wherein the first

temperature sensor provides a first temperature signal influenced by a temperature in the flowing fluid.

26. (New) A vortex flow sensor as set forth in claim 25 wherein the second temperature sensor provides a second temperature signal influenced by temperature in the flowing fluid.

27. (New) A vortex flow sensor as set forth in claim 26, further comprising an evaluation electronics for processing measurement signals, said evaluation electronics being fed by said vortex signal and said first and second temperature signals.

28. (New) A vortex flow sensor as set forth in claim 27, wherein in the evaluation electronics is stored a mathematical model for the heat transfer from the fluid to bluff body.

29. (New) A vortex flow sensor as set forth in claim 27, wherein in the evaluation electronics is stored a mathematical model for heat propagation processes within bluff body.

30. (New) Use of a vortex flow sensor as set forth in claim 20 for measuring flowing vapor.